



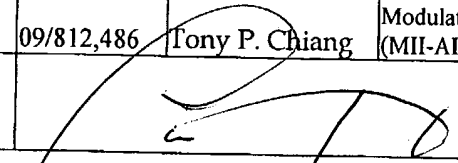
IN THE  
UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANTS: Tony P. Chiang and Karl F. Leeser  
SERIAL NO.: 09/854,092  
FILED: May 10, 2001  
TITLE: Method and Apparatus for Improved Temperature Control  
in Atomic Layer Deposition  
EXAMINER: Unknown  
GROUP ART UNIT: 1762  
ATTY.DKT.NO.: PA1663US

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WASHINGTON, D.C. 20231

List of Co-Pending Patent Applications That  
May Be Directed Towards Similar Subject Matter

Examiner's Initials	Serial Number	First-Named Inventor	Title	Filing Date
THM	09/812,285	Tony P. Chiang	A Sequential Method for Depositing a Film by Modulated Ion-Induced Atomic Layer Deposition (MII-ALD)	03-19-01
I	09/812,352	Tony P. Chiang	System and Method for Modulated Ion-Induced Atomic Layer Deposition (MII-ALD)	03-19-01
THM	09/812,486	Tony P. Chiang	A Continuous Method for Depositing a Film by Modulated Ion-Induced Atomic Layer Deposition (MII-ALD)	03-19-01
Examiner's Signature:				Date 6/24/01

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Substitute for form 1449A/PTO

# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

*(use as many sheets as necessary)*

Sheet 1 of 1

**Complete if Known**

Application Number	09/854,092
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Filing Dat	May 10, 2001
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First Named Inventor	Chiang
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Group Art Unit	1762
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Examiner Name	Unknown
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Attorney Docket Number PA1663US

## U.S. PATENT DOCUMENTS

[illegible]

## FOREIGN PATENT DOCUMENTS

[illegible]

**Examiner  
Signature**

Date	
Considered	

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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PTO/SB/08A (08-00)

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Substitution for form 1449A/PTO <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> (use as many sheets as necessary)		<b>Complete if Known</b>	
		Application Number	09/854,092
		Filing Date	May 10, 2001
		First Named Inventor	Tony P. Chiang
		Group Art Unit	unknown
		Examiner Name	unknown
Sheet	1 of 2	Attorney Docket Number	PA1663US

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
THM		4,534,842		Amal et al.	08-13-1985	
		4,563,367		Sherman	01-07-1986	
		4,745,337		Pichot et al.	05-17-1988	
		5,061,838		Lane et al.	10-29-1991	
		5,102,687		Pelletier et al.	04-07-1992	
		5,223,457		Mintz et al.	06-29-1993	
		5,227,695		Pelletier, Jacques H. et al.	07-13-1993	
		5,483,919		Yokoyama et al.	01-16-1996	
		5,536,914		Pelletier et al.	07-16-1996	
		5,605,637		Shan et al.	02-25-1997	
		5,653,811		Chan	08-05-1997	
		5,666,023		Pelletier	09-09-1997	
		5,702,530		Shan et al.	12-30-1997	
		5,916,365		Sherman	06-29-1999	
		6,054,016		Tuda et al.	04-25-2000	
		6,080,446		Tobe et al.	06-27-2000	
THM		6,103,304		Mizuno	08-15-2000	

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Examiner Signature	Date Considered	6/24/04
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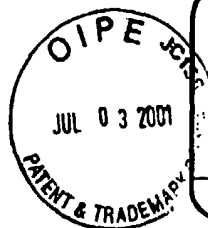
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Substitute for form 1449B/PTO		<b>Complete if Kn wn</b>			
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)		Application Number			
		Filing Date	May 10, 2001		
		First Named Inventor	Tony P. Chiang		
		Group Art Unit	unknown		
		Examiner Name	unknown		
Sheet	2	of	2	Attorney Docket Number	PA1663US

OTHER PRIOR ART - NON PATENT LITERATURE DOCUMENTS			
Examiner Initials <sup>1</sup>	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
THM		T.P. CHIANG, et al., "Ion-induced chemical vapor deposition of high purity Cu films at room temperature using a microwave discharge H atom beam source," Journal Vacuum Science Technology, Sep/Oct 1997, pg. 2677-2686, Vol. A 15(5), American Vacuum Society.	
		T.P. CHIANG, et al., "Surface kinetic study of ion-induced chemical vapor deposition of copper for focused ion beam applications," Journal Vacuum Science Technology, Nov/Dec 1997, pg. 3104-3114, vol. A 15(6), American Vacuum Society.	
		K.A. ASHTIANI, et al., "A New Hollow-Cathode Magnetron Source for 0.10um Copper Applications, Novellus Systems, Inc., San Jose, CA.	
		XIAOMENG CHEN, et al., "Low temperature plasma-promoted chemical vapor deposition of tantalum from tantalum pentabromide for copper metallization," Journal Vacuum Science Technology, Sep/Oct 1998, pg. 2887-2890, vol. B 16(5), American Vacuum Society.	
		XIAOMENG CHEN, et al., "Low temperature plasma-assisted chemical vapor deposition of tantalum nitride from tantalum pentabromide for copper metallization," Journal Vacuum Science Technology, Jan/Feb 1999, pg. 182-185, vol. B 17(1), American Vacuum Society.	
		PER MARTENSSON, "Atomic Layer Epitaxy of Copper," Comprehensive Summaries of Uppsala Dissertations from the Faculty of Science and Technology, 1999, pg. 1-45, Acta Universitatis Upsaliensis, Uppsala, Sweden.	
		PER MARTENSSON, et al., "Atomic Layer Epitaxy of Copper on Tantalum," Chemical Vapor Deposition, 1997, pg. 45-50, vol. 3 no.1, Weinheim.	
THM		MIKKO RITALA, et al., "Controlled Growth of TaN, Ta3N5, and TaOxNy Thin Films by Atomic Layer Deposition," Chemical Materials, 1999, pg. 1712-1718, vol. 11 no. 7, American Chemical Society.	

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